L11 ANSWER 1 OF 4 CA COPYRIGHT 2003 ACS
AN 137:334779 CA
TI FAST CARS: Engineering a laser spectroscopic technique for rapid identification of bacterial **spores**
AU Scully, M. O.; Kattawar, G. W.; Lucht, R. P.; Opatrny, T.; Pilloff, H.; Rebane, A.; Sokolov, A. V.; Zubairy, M. S.
CS Institute for Quantum Studies, Texas A and M University, College Station, TX, 77843, USA
SO Proceedings of the National Academy of Sciences of the United States of America (2002), 99(17), 10994-11001
CODEN: PNASA6; ISSN: 0027-8424
PB National Academy of Sciences
DT Journal
LA English
AB Airborne contaminants, e.g., bacterial **spores**, are usually analyzed by time-consuming microscopic, chem., and biol. assays. Current research into real-time laser spectroscopic detectors of such contaminants is based on e.g., resonance **fluorescence**. The present approach derives from recent expts. in which atoms and mols. are prepd. by one (or more) coherent laser(s) and probed by another set of lasers. However, generating and using maximally coherent oscillation in macromols. having an enormous no. of degrees of freedom is challenging. In particular, the short dephasing times and rapid internal conversion rates are major obstacles. However, adiabatic fast passage techniques and the ability to generate combs of phase-coherent femtosecond pulses provide tools for the generation and utilization of maximal quantum coherence in large mols. and biopolymers. We call this technique FAST CARS (femtosecond adaptive spectroscopic techniques for coherent anti-Stokes Raman spectroscopy), and the present article proposes and analyses ways in which it could be used to rapidly identify preselected mols. in real time.
CC 9-5 (Biochemical Methods)
ST FAST CARS engineering laser spectroscopic technique bacterial **spore**
IT Bacillus cereus
Bacillus megaterium
Bacteria (Eubacteria)
CARS Raman spectroscopy
Laser spectroscopy
Resonance **fluorescence**
Spore
(FAST CARS for rapid identification of bacterial **spores**)
IT Biopolymers
Macromolecular compounds
RL: ANT (Analyte); **ANST (Analytical study)**
(FAST CARS for rapid identification of bacterial **spores**)
IT DNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(FAST CARS for rapid identification of bacterial **spores**)
IT Proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(FAST CARS for rapid identification of bacterial **spores**)
IT RNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(FAST CARS for rapid identification of bacterial **spores**)
IT 6893-30-7, Calcium **dipicolinate**
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(FAST CARS for rapid identification of bacterial **spores**)
RE.CNT 66 THERE ARE 66 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 2 OF 4 CA COPYRIGHT 2003 ACS
AN 134:233815 CA
TI Physical perturbation for fluorescent characterization of microorganism

particles
AU Bronk, Burt V.; Shoaibi, Azadeh; Nudelman, Raphael; Akinyemi, Agnes N.
CS AFRL/ECBC at U.S. Army ECBC, A.P.G., MD, 21010-5424, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 4036(Chemical and Biological Sensing), 169-180
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB The motivation for using response to phys. perturbation to classify microparticles came from our previous expts. with **Dipicolinic** Acid (DPA). DPA as a calcium complex is a major component of bacterial **spores**, constituting more than 5% of their dry wt. It is not commonly found in other natural products and therefore its presence is indicative of the presence of bacterial **spores**. Previous schemes utilizing the presence of DPA to detect these **spores** have relied on **fluorescence** which occurs when lanthanide metals (e.g., terbium) are added to a soln. where the presence of DPA is to be detd. We have recently demonstrated that changes in the **fluorescence** of DPA can be stimulated without the addn. of such reagents. Thus after exposure to UV light, a substantial increase of **fluorescence** emitted by DPA solns. with a peak at 410 nm occurs for excitation light with wavelength less than approx. 305 nm.
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST fluorometry microorganism optical classification **dipicolinate**
IT Bacillus megaterium
Bacillus subtilis
Escherichia coli
Fluorometry
Microorganism
(phys. perturbation for fluorescent characterization of microorganism particles)
IT 499-83-2, **Dipicolinic** Acid
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(phys. perturbation for fluorescent characterization of microorganism particles)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 3 OF 4 CA COPYRIGHT 2003 ACS
AN 132:75561 CA
TI **Dipicolinic** acid (DPA) assay revisited and appraised for **spore** detection
AU Hindle, Alistair A.; Hall, Elizabeth A. H.
CS Inst. Biotechnol., University of Cambridge, Cambridge, CB2 1QT, UK
SO Analyst (Cambridge, United Kingdom) (1999), 124(11), 1599-1604
CODEN: ANALAO; ISSN: 0003-2654
PB Royal Society of Chemistry
DT Journal
LA English
AB Delayed gate **fluorescence** detection of **dipicolinic** acid (DPA), a universal and specific component of bacterial **spores**, has been appraised for use in a rapid anal. method for the detection of low concns. of bacterial **spores**. DPA was assayed by fluorimetric detection of its chelates with lanthanide metals. The influence of the choice and concn. of lanthanide and buffer ions on the **fluorescence** assay was studied as well as the effects of pH and temp. The optimal system quantified the **fluorescence** of terbium monodipicolinate in a soln. of 10 .mu.M terbium chloride buffered with 1 M sodium acetate, pH 5.6 and had a detection limit of 2 nM DPA. This assay allowed the first real-time monitoring of the germination of bacterial **spores** by continuously quantifying exuded DPA. A detection limit

of 104 Bacillus subtilis **spores** ml-1 was reached, representing a substantial improvement over previous rapid tests.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10

ST **dipicolinate** DPA detn Bacillus **spore** fluorometry

IT Bacillus subtilis
Fluorometry
Solvent effect
Spore
(**dipicolinic** acid (DPA) assay for **spore** detection)

IT 499-83-2, **Dipicolinic** acid
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study); OCCU (Occurrence)
(**dipicolinic** acid (DPA) assay for **spore** detection)

IT 13759-92-7, Europium chloride hexahydrate 13798-24-8, Terbium chloride hexahydrate 15059-52-6, Dysprosium chloride hexahydrate
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(**dipicolinic** acid (DPA) assay for **spore** detection)

RE.CNT 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 4 OF 4 CA COPYRIGHT 2003 ACS

AN 131:141627 CA

TI **Fluorescence** of **dipicolinic** acid as a possible component of the observed UV emission spectra of bacterial **spores**

AU Nudelman, Raphael; Feay, Nicole; Hirsch, Mathew; Efrima, Shlomo; Bronk, Burt

CS Mantech Environmental Technology Inc., USA

SO Proceedings of SPIE-The International Society for Optical Engineering (1999), 3533(Air Monitoring and Detection of Chemical and Biological Agents), 190-195
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB **Dipicolinic** acid (DPA) and the Ca2+ complex of DPA (CaDPA) are well-known and are major chem. components of bacterial **spores**. DPA's native **fluorescence** is very weak and is thought to be completely masked by the **fluorescence** of tryptophan when this compd. is present. Thus **fluorescence** related to DPA in **spores** is assumed by many authors to be completely absent. We show that the **fluorescence** of CaDPA is substantial for excitation between about 290 nm and 310 nm with emission peaking near 400 nm. This emission is at the long wavelength tail for emission from tryptophan. We examine whether the emission of CaDPA could contribute to the total emission spectrum when bacterial **spores** are present in an aerosol, for excitation wavelengths in the neighborhood of 310 nm. In this report we present measurements of **fluorescence** excitation and emission for CaDPA and compare them with that of DPA and tryptophan.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 4, 10

ST bacterium **spore dipicolinate** fluorometry

IT **Bacteria** (Eubacteria)
Environmental analysis
Fluorometry
Spore
(**fluorescence** of **dipicolinic** acid as a possible component of obsd. UV emission spectra of bacterial **spores**)

IT 73-22-3, L-Tryptophan, analysis 499-83-2, **Dipicolinic** acid 499-83-2D, **Dipicolinic** acid, calcium complex 7440-70-2D, Calcium, complex with **dipicolinic** acid, analysis
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study,

unclassified); **ANST (Analytical study)**; BIOL (Biological study);
OCCU (Occurrence)
(**fluorescence** of **dipicolinic** acid as a possible
component of obsd. UV emission spectra of bacterial **spores**)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=>

L19 ANSWER 4 OF 4 CA COPYRIGHT 2003 ACS
AN 123:328802 CA
TI Native **fluorescence** detection and spectral differentiation of peptides containing tryptophan and tyrosine in capillary electrophoresis
AU Timperman, Aaron T.; Oldenburg, Kurt E.; Sweedler, Jonathan V.
CS Department of Chemistry, University of Illinois, Urbana, IL, 61801, USA
SO Analytical Chemistry (1995), 67(19), 3421-6
CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
AB A native **fluorescence** detection system for capillary electrophoresis is described that achieves low attomole detection limits and simultaneous acquisition of complete **fluorescence emission** spectra. The system is designed for detection of peptides through the **intrinsic fluorescence** of tryptophan and tyrosine residues. The detection system employs a frequency doubled krypton laser operating at 284 nm for **excitation**, a sheath flow cell, a reflective f/1.2 microscope objective, an imaging spectrograph, and a CCD detector. The detection capabilities were characterized with tryptophan and tyrosine, which have limits of detection (3.sigma.) of 2 .times. 10-10 and, 2 .times. 10-8 M, resp. Acquisition of the **fluorescence emission** spectrum provides the ability to distinguish three classes of peptides: those that contain tryptophan, those that contain tyrosine, and those that contain both tryptophan and tyrosine.
CC 80-2 (Organic Analytical Chemistry)
Section cross-reference(s): 9
ST native **fluorescence** detection tryptophan tyrosine peptide; electrophoresis **fluorescence** detection tryptophan tyrosine peptide
IT Fluorometers
(for native **fluorescence** detection and spectral differentiation of peptides contg. tryptophan and tyrosine in capillary electrophoresis)
IT Peptides, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(native **fluorescence** detection and spectral differentiation of peptides contg. tryptophan and tyrosine in capillary electrophoresis)
IT Electrophoresis and Ionophoresis
(capillary, detectors, for native **fluorescence** detection and spectral differentiation of peptides contg. tryptophan and tyrosine)
IT **Microbial** hormones and pheromones
RL: ANT (Analyte); **ANST (Analytical study)**
(.alpha.-factor, native **fluorescence** detection and spectral differentiation of peptides contg. tryptophan and tyrosine in capillary electrophoresis)
IT 60-18-4D, Tyrosine, peptides 73-22-3, Tryptophan, analysis 73-22-3D, Tryptophan, peptides 21778-69-8 58822-25-6, Leucine-enkephalin 59401-28-4, .alpha.-Mating factor (yeast) 65418-88-4, .alpha.-1-Mating factor 89911-64-8, Cholecystokinin(26-31) 98395-75-6, Neuromedin U 8 (pig spinal cord)
RL: ANT (Analyte); **ANST (Analytical study)**
(native **fluorescence** detection and spectral differentiation of peptides contg. tryptophan and tyrosine in capillary electrophoresis)

=>

L17 ANSWER 5 OF 179 CA COPYRIGHT 2003 ACS
AN 138:85885 CA
TI Comparative intrinsic and enhanced total photoluminescence of endospore material
AU Anderson, John E.; Webb, Stanley Thomas; Fischer, Robert L.; Kester, Karen; Smith, Clint
CS U.S. Army Topographic Engineering Center, Alexandria, VA, 22315, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2002), 4576(Advanced Environmental Sensing Technology II), 27-31
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB Two techniques are compared using total luminescence spectroscopy to detect endospore material in prepns. equiv. to 3.0 x 105/mL **spores**. The first method applied intrinsic, steady-state photoluminescence for detection. The second approach using a binding fluorochrome derived from 4-p-dimethylaminostyrylpyridinium (DASP) to signal the presence of **spore** material. Comparative **fluorescence emission** signatures (excited at 469 nm) showed greater calibrated signal recovery (4x106 cps) for **spore** material at longer wavelengths using DASP. The intrinsic **fluorescence emission** of endospores (excited at 346 nm) occurred at shorter wavelengths and showed a reduced calibrated intensity (1.4 x 105 counts per s, cps). One major advantage of DASP appears to be its longer wavelength **excitation** (469 nm) that is out of the range of assocd. biol. materials that compete for absorption at shorter UV wavelengths.
CC 9-5 (Biochemical Methods)
ST photoluminescence spectroscopy endospore
IT Luminescence spectroscopy
(comparative intrinsic and enhanced total photoluminescence of endospore material using dimethylaminostyrylpyridinium fluorochrome)
IT Fluorescent dyes
(dimethylaminostyrylpyridinium deriv.; comparative intrinsic and enhanced total photoluminescence of endospore material using dimethylaminostyrylpyridinium fluorochrome)
IT **Spore**
(endospore; comparative intrinsic and enhanced total photoluminescence of endospore material using dimethylaminostyrylpyridinium fluorochrome)
IT 186659-60-9
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(fluorochrome derived from; comparative intrinsic and enhanced total photoluminescence of endospore material using dimethylaminostyrylpyridinium fluorochrome)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 12 OF 179 CA COPYRIGHT 2003 ACS
AN 137:286140 CA
TI Optical structure for multi-photon **excitation** and the use thereof
IN Duveneck, Gert L.; Bopp, Martin A.; Pawlak, Michael; Ehrat, Markus; Marowsky, Gerd
PA Zeptosens A.-G., Switz.
SO PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI WO 2002079765 A2 20021010 WO 2002-EP2958 20020318
WO 2002079765 A3 20030130
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI CH 2001-617 A 20010402
CH 2001-689 A 20010412

AB Optical structures comprising an optical waveguide with a waveguiding layer that is transparent at .gtoreq.1 **excitation** wavelength are described in which the intensity of **excitation** light that is input into and guided via the waveguiding layer is sufficiently high to excite mols. or groups of mols. at a surface of the layer or within 200 nm of the layer by means of multi-photon **excitation**, preferably two-photon **excitation**. Optionally, an adhesive agent may be used to immobilize biochem. or biol. mols., or other materials, for use in detecting or detg. analytes in a sample. Optical systems for carrying out multiphoton **excitation**, and methods for anal. (e.g., luminescence **excitation** and to the luminescent detection of one or several analytes) using the systems are also described. The systems may also be used to form optical tweezers. Methods for luminescence and **fluorescence** anal. of biomols., including autofluorescence of nucleic acids, is emphasized.

IC ICM G01N021-77
ICS G01N021-55; G01N021-64

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 9, 17, 64, 74

ST waveguide multiphoton **excitation** system; luminescence analysis waveguide multiphoton **excitation** system; **fluorescence** analysis waveguide multiphoton **excitation** system

IT Prion proteins
RL: ANT (Analyte); **ANST (Analytical study)**
(PrPSc, assay for; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT **Bacteria** (Eubacteria)
Pathogen
Salmonella
(assay for; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT **Fluorescence**
(autofluorescence; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Disease, plant
(diagnosis of; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Immunoassay
(**fluorescence**; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Immunoassay
(immunofluorometric; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Photoexcitation

(multiphoton; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(thio-; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Photoexcitation
(two-photon; waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Blood analysis
Combinatorial chemistry
Diagnosis
Drug design
Drug screening
Egg yolk
Fluorescence
Fluorometers
Fluorometry
Food analysis
Gene expression profiles
Luminescence
Optical waveguides
Pharmaceutical analysis
Plant analysis
Surface waters
Urine analysis
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Agglutinins and Lectins
Carbohydrates, analysis
DNA
Enzymes, analysis
Oligonucleotides
RNA
Receptors
RL: ANT (Analyte); **ANST (Analytical study)**
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Acrylic polymers, uses
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polyamides, uses
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polycarbonates, uses
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polyimides, uses

RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT Polyurethanes, uses
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT 71-00-1D, L-Histidine, oligomers
RL: ANT (Analyte); **ANST (Analytical study)**
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

IT 1313-96-8, Niobium oxide 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-61-0, Tantalum oxide 9002-88-4, Polyethylene 9003-01-4, Polyacrylic acid 9003-07-0, Polypropylene 9003-53-6, Polystyrene 9011-14-7, Polymethylmethacrylate 12055-23-1, Hafnium oxide 13463-67-7, Titanium oxide, uses 25038-59-9, Polyethylene terephthalate, uses
RL: DEV (Device component use); USES (Uses)
(waveguide structures for multiphoton **excitation** and methods of multiphoton **excitation** using them and use of the structures in luminescent anal.)

L17 ANSWER 17 OF 179 CA COPYRIGHT 2003 ACS
AN 136:382505 CA
TI Device for monitoring cells
IN Pitner, J. Bruce; Hemperly, John Jacob; Guarino, Richard D.; Wodnicka, Magdalena; Stitt, David T.; Burrell, Gregory J.; Foley, Timothy G., Jr.; Beaty, Patrick Shawn
PA Becton, Dickinson and Company, USA
SO U.S., 42 pp., Cont.-in-part of U.S. Ser. No. 715,557.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6395506	B1	20020528	US 1999-342720	19990629
	EP 509791	A1	19921021	EP 1992-303391	19920415
	EP 509791	B1	19960703		
	R: DE, FR, GB, IT				
	CA 2066329	AA	19921019	CA 1992-2066329	19920416
	JP 05137596	A2	19930601	JP 1992-98368	19920418
	JP 07073510	B4	19950809		
	US 2002192636	A1	20021219	US 2002-109475	20020328
	US 2002155424	A1	20021024	US 2002-116777	20020404
PRAI	US 1991-687359	B1	19910418		
	US 1993-25899	A2	19930303		
	US 1996-715557	A2	19960918		
	US 1999-342720	A2	19990629		
	US 2000-642504	A2	20000818		
	US 2001-966505	A2	20010928		

AB The present invention relates to methods for detection and evaluation of metabolic activity of eukaryotic and/or prokaryotic cells based upon their ability to consume dissolved oxygen. The methods utilize a luminescence detection system which makes use of the sensitivity of the luminescent **emission** of certain compds. to the presence of oxygen, which

quenches (diminishes) the compd.'s luminescent **emission** in a concn. dependent manner. Respiring eukaryotic and/or prokaryotic cells will affect the oxygen concn. of a liq. medium in which they are immersed. Thus, this invention provides a convenient system to gather information on the presence, identification, quantification and cytotoxic activity of eukaryotic and/or prokaryotic cells by detg. their effect on the oxygen concn. of the media in which they are present.

IC ICM C12Q001-18

NCL 435032000

CC 9-1 (Biochemical Methods)
Section cross-reference(s): 1, 4

ST device monitoring cell

IT Plates
(Microtitration; device for monitoring cells)

IT Analytical apparatus
Antibiotics
Bacteria (Eubacteria)
Biological materials
Blood
Blood serum
Cell
Cell proliferation
Chemicals
Coating materials
Composition
Concentration (condition)
Culture media
Cytotoxicity
Drugs
Escherichia coli
Eukaryota
Extracellular matrix
Fluorescence quenching
Impermeability
Insecta
Light
Liquids
Luminescence
Luminescence quenching
Luminescence spectroscopy
Luminescent substances
Mathematical methods
Metabolism
Microorganism
Molecules
Particles
Permeability
Prokaryote
Pseudomonas aeruginosa
Radiation
Reducing agents
Respiration, animal
Respiration, **microbial**
Sensors
Solutes
Wavelength
Wetting
Yeast
(device for monitoring cells)

IT Toxins
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(device for monitoring cells)

IT Reagents
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES

(Uses)
(device for monitoring cells)
IT Plastics, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(device for monitoring cells)
IT Rubber, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(device for monitoring cells)
IT Silicone rubber, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(device for monitoring cells)
IT Growth factors, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(device for monitoring cells)
IT Collagens, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(device for monitoring cells)
IT Entactin
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(device for monitoring cells)
IT Laminins
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(device for monitoring cells)
IT Proteoglycans, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(heparitin sulfate-contg.; device for monitoring cells)
IT Optical detectors
(luminescence; device for monitoring cells)
IT Animal cell
(mammal; device for monitoring cells)
IT Amino acids, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(nonessential; device for monitoring cells)
IT Collagens, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(type IV; device for monitoring cells)
IT 1499-10-1, 9,10-Diphenylanthracene 15158-62-0D, Tris-2,2'-bipyridylruthenium (II), salts 36309-88-3, Tris-4,7-diphenyl-1,10-phenanthroline ruthenium (II) chloride 50525-27-4, Tris-2,2'-bipyridylruthenium (II) chloride hexahydrate. 63373-04-6D, Tris-4,7-diphenyl-1,10-phenanthroline ruthenium (II), salts
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES
(Uses)
(device for monitoring cells)
IT 7631-86-9, Silica, analysis
RL: ARU (Analytical role, unclassified); **ANST (Analytical study)**
(device for monitoring cells)
IT 59-05-2, Methotrexate 151-21-3, Sodium dodecyl sulfate, biological studies 865-21-4, Vinblastine 7757-83-7, Sodium Sulfite 7782-44-7, Oxygen, biological studies 26628-22-8, Sodium Azide 35607-66-0, Cefoxitin 55268-75-2, Cefuroxime 85721-33-1, Ciprofloxacin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(device for monitoring cells)
IT 57-92-1, Streptomycin, biological studies 113-24-6, Sodium pyruvate 1397-89-3, Fungizone 1406-05-9, Penicillin 119978-18-6, Matrigel 141907-41-7, Matrix metalloproteinase
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)

(device for monitoring cells)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 18 OF 179 CA COPYRIGHT 2003 ACS
AN 136:337350 CA
TI Method for detecting living cells in medium and measuring pH of medium
IN Kawasaki, Yukishige; Tsuji, Takashi; Kurane, Ryuichiro
PA Sangyo Gijutsu Sogo Kenkyusho, Japan; Bioindustry Association; Mitsubishi Chemical Corp.
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002125696	A2	20020508	JP 2000-319247	20001019
PRAI	JP 2000-319247		20001019		

AB A convenient method is provided for simultaneously performing the detection of living cells (e.g, microorganism) in a medium and the measurement of the medium pH. The method comprises a step for adding a fluorescent enzyme substrate (e.g., 5-carboxyfluoroscein diacetate acetoxymethyl ester, 5-(and 6-)carboxyfluoroscein diacetate, 2',7'-bis-(2-carboxyethyl)-5-(and 6-)carboxyfluorescein acetoxymethyl ester, 5-sulfofluorescein diacetate) to the medium contg. living cells, a step for irradiating two kinds of **excitation** light with different wavelength to the medium, a step for detecting the living cells from the **fluorescence** intensity obtained, and a step for measuring the pH of the medium by calcg. the intensity ratio between the **fluorescence** generated by two kinds of **excitation** light.

IC ICM C12Q001-06
ICS C12M001-34; C12Q001-34; G01N021-64; G01N021-80; G01N033-84
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST living cell microorganism medium pH fluorometry
IT Optical filters
(bandpass; method for detecting living cells in medium and measuring pH of medium)
IT Fluorescent substances
(enzyme substrate; method for detecting living cells in medium and measuring pH of medium)
IT Light
(**excitation**; method for detecting living cells in medium and measuring pH of medium)
IT Cell
(living; method for detecting living cells in medium and measuring pH of medium)
IT Aeolosoma
Bacteria (Eubacteria)
Chlorella
Culture media
Cyclidium (protozoan)
Fluorescence microscopy
Fluorometry
Lepadella
Microorganism
Philodina
Scenedesmus
Schizothrix
Test kits
Wavelength
pH
(method for detecting living cells in medium and measuring pH of

medium)

IT 116723-31-0 118493-69-9 124387-19-5 124412-00-6
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study); USES (Uses)
(method for detecting living cells in medium and measuring pH of medium)

L17 ANSWER 20 OF 179 CA COPYRIGHT 2003 ACS
AN 136:337178 CA
TI Spectrofluorometric system devised so as to permit the synchronous measurement of both the bacterial bioluminescence and its related **fluorescence emission**
AU Karatani, Hajime; Furuta, Kenji; Hirayama, Satoshi
CS Dept. of Polymer Science and Engineering, Kyoto Institute of Technology, Japan
SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4252(Advances in Fluorescence Sensing Technology V), 88-96
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB A novel spectrofluorometer equipped with two photo-detectors has been developed based on a conventional spectrofluorometer with a view to measuring both bioluminescence and its related **fluorescence** originating from bacterial luciferase reaction. The configuration of the two monochromator-photomultiplier systems is to be opposite to each other. First the capability of the created system was evaluated using the peroxidase-catalyzed luminol chemiluminescence. The light **emission** signals as a function of time evidently showed that intensities of chemiluminescence generated by the reaction and of **fluorescence** elicited from the photoexcited reaction product vary inversely. This reflects the feature of the luminol reaction. Any interference from either **excitation** light or **fluorescence emission** is absent in the detection of chem. initiated light. Subsequently, the evaluation of the spectrofluorometer was made on the luciferase reactions under the various conditions. The observation of signals for bioluminescence and **fluorescence** from the luciferase reactions under the various conditions. The observation of signals for bioluminescence and **fluorescence** from the luciferase reaction was established to be useful in studying the time-dependent behaviors of the fluorescent substrates and/or products as well as a primary emitter formed in the luciferase reaction. From these evaluations, the developed spectrofluoromenter has proved to be profitable to study bacterial bioluminescence.
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST spectrofluorometry measurement **bacteria** bioluminescence **fluorescence**
IT **Bacteria** (Eubacteria)
Fluorescence
Fluorometry
Luminescence, bioluminescence
(spectrofluorometric system for synchronous measurement of both bacterial bioluminescence and related **fluorescence emission**)
IT 9014-00-0, Luciferase 39346-42-4, FMN reductase
RL: ANT (Analyte); **ANST (Analytical study)**
(spectrofluorometric system for synchronous measurement of both bacterial bioluminescence and related **fluorescence emission**)
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 33 OF 179 CA COPYRIGHT 2003 ACS
AN 135:192324 CA
TI Ultraviolet **fluorescence** imaging applications
AU Hill, Ralph H., Jr.; Angell, Peter
CS Instrumentation and Space Research Division, Southwest Research Institute, San Antonio, TX, USA
SO AT-PROCESS (2000), 5(3,4), 108-114
CODEN: APJCFR; ISSN: 1077-419X
PB InfoScience Services
DT Journal
LA English
AB The UV **fluorescence** of arom. amino acids in **microbial** biofilms can be used to det. the biomass formed in corrosion pits on metal surfaces. This information is important in establishing the relationship between **bacteria** and corrosion; i.e., which comes first, the corrosion pits or the biomass One specific amino acid that has been used in past studies to indicate biomass is tryptophane. Tryptophane fluoresces in the near UV region; this **fluorescence** can be used to quantify the amt. of tryptophane and biomass, present on the metal surfaces. Under Southwest Research Institute (SwRI) internal research funding, a radiometrically calibrated UV-imaging system has been previously developed. This system was developed to image tactical missile plumes in the solar-blind UV region of the spectrum near 260 nm. The basic building block is a microchannel plate-intensified charge-coupled device (MCP-CCD) camera. For the project presented in this paper, a 325 nm helium-cadmium laser was used as an **excitation** source and the camera filtering converted to the near-UV wavelength region. Research was conducted to measure the **fluorescence** from the arom. amino acid tryptophane under various dilns. in water. Fluorescent images were also recorded from the Oceanospirillum **bacteria** on a copper coupon; this **bacteria** was originally isolated from copper on Navy platforms by Naval Research Lab. personnel. Other applications will also be mentioned.
CC 9-5 (Biochemical Methods)
ST UV **fluorescence** imaging
IT Lasers
(Helium-cadmium; UV **fluorescence** imaging applications)
IT **Bacteria** (Eubacteria)
Biofilms (**microbial** reactors)
Biomass
CCD cameras
Corrosion
Dilution
Fluorescence
Interface
Oceanospirillum
Plates
(UV **fluorescence** imaging applications)
IT Metals, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(UV **fluorescence** imaging applications)
IT Imaging
(UV **fluorescence**; UV **fluorescence** imaging applications)
IT Amino acids, analysis
RL: ANT (Analyte); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study)
(arom.; UV **fluorescence** imaging applications)
IT Wavelength
(near-UV; UV **fluorescence** imaging applications)
IT 73-22-3, Tryptophane, analysis
RL: ANT (Analyte); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study)
(UV **fluorescence** imaging applications)

IT 7440-50-8, Copper, biological studies 7732-18-5, Water, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(UV **fluorescence** imaging applications)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 36 OF 179 CA
AN 135:18679 CA
TI Association of bright greenish yellow **fluorescence** with aflatoxin production in cereals
AU Ijaz, Nusrat; Salah-ud-Din; Yasin, M.
CS Biotechnology and Food Research Centre, Pakistan Council of Scientific and Industrial Research Laboratories, Lahore, Pak.
SO Pakistan Journal of Science (2000), 52(1-2), 47-52
CODEN: PAJSAS; ISSN: 0030-9877
PB Pakistan Association for the Advancement of Science
DT Journal
LA English
AB Bright greenish yellow **fluorescence** (BGYF) was studied in cereals, after inoculating those with **spores** of toxic strain of Aspergillus flavus. Pos. relationship between mold growth, kojic acid prodn., BGYF **emission** and aflatoxin contents was established. BGYF units increased with an increase in aflatoxin prodn. Profused mold growth resulted in improved synthesis of Kojic acid, the chem. which is necessary to produce BGYF.
CC 17-1 (Food and Feed Chemistry)
ST cereal aflatoxin **fluorescence** fluorimeter
IT Aspergillus flavus
Cereal (grain)
Fluorescence
Fluorometers
Rice (Oryza sativa)
Sorghum
Wheat
(assocn. of bright greenish yellow **fluorescence** with aflatoxin prodn. in cereals)
IT Aflatoxins
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study); OCCU (Occurrence)
(assocn. of bright greenish yellow **fluorescence** with aflatoxin prodn. in cereals)
IT 501-30-4, Kojic acid 9003-99-0, Peroxidase
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(assocn. of bright greenish yellow **fluorescence** with aflatoxin prodn. in cereals)
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 42 OF 179 CA
AN 134:233815 CA
TI Physical perturbation for fluorescent characterization of microorganism particles
AU Bronk, Burt V.; Shoaibi, Azadeh; Nudelman, Raphael; Akinyemi, Agnes N.
CS AFRL/ECBC at U.S. Army ECBC, A.P.G., MD, 21010-5424, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 4036(Chemical and Biological Sensing), 169-180
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB The motivation for using response to phys. perturbation to classify

microparticles came from our previous expts. with Dipicolinic Acid (DPA). DPA as a calcium complex is a major component of bacterial **spores**, constituting more than 5% of their dry wt. It is not commonly found in other natural products and therefore its presence is indicative of the presence of bacterial **spores**. Previous schemes utilizing the presence of DPA to detect these **spores** have relied on **fluorescence** which occurs when lanthanide metals (e.g., terbium) are added to a soln. where the presence of DPA is to be detd. We have recently demonstrated that changes in the **fluorescence** of DPA can be stimulated without the addn. of such reagents. Thus after exposure to UV light, a substantial increase of **fluorescence** emitted by DPA solns. with a peak at 410 nm occurs for **excitation** light with wavelength less than approx. 305 nm.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10

ST fluorometry microorganism optical classification dipicolinate

IT Bacillus megaterium
Bacillus subtilis
Escherichia coli
Fluorometry
Microorganism
(phys. perturbation for fluorescent characterization of microorganism particles)

IT 499-83-2, Dipicolinic Acid
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(phys. perturbation for fluorescent characterization of microorganism particles)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 46 OF 179 CA COPYRIGHT 2003 ACS

AN 134:128009 CA

TI Sensitivity of detection of **bacteria** with fluorescent and luminescent phenotypes using different instruments

AU Brovko, Lioubov Yu.; Griffiths, Mansel W.

CS Food Sci. Dep., Univ. of Guelph, Guelph, ON, Can.

SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 3921(Optical Diagnostics of Living Cells III), 147-156
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB The problem of bacterial enumeration in different samples is of great importance in many fields of research. Construction of recombinant fluorescent and luminescent **bacteria** that can be easily detected by nondestructive instrumental methods provides us with an opportunity to monitor **bacteria** in a wide variety of clin., environmental and food samples in real time. Three different labels were employed: Green Fluorescent Protein (GFP), Bacterial luciferase (BL) and Firefly Luciferase (FFL). Both plasmid and chromosomal transformants of different strains of E. coli, P. putida and S. enteritidis were used. For the detection of the in vivo GFP the Shimadzu RF 540 spectrofluorimeter, Labsystems FL- 500 plate fluorometer and Night Owl LB 98 CCD-camera from EG and G Berthold supplied with **excitation** light source and proper spectral filters both in macroscopic and microscopic mode were used. For the detection of in vivo luminescence of BL and FFL, tube luminometer BG-P from GEM Biomedical Inc., luminometric plate reader from BioOrbit, BIQ Bioview CCD camera from Cambridge Imaging Ltd and Night Owl LB 98 CCD camera both in macroscopic and microscopic mode were used. The expression levels of the labels, their stability, stability of the signal and detection limits of tagged **bacteria** were investigated. The detection limits for GFP tagged **bacteria** were 5 X 104 - 6 X 106, for BL tagged **bacteria** 5 X 102 - 2 X 105, and for FFL tagged

bacteria - 4 X 103 - 106 CFU/mL, depending on the instrument used. Single **bacteria** could be detected with the help of the Night Owl in the microscopic mode.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10

ST **bacteria** enumeration **fluorescence** luminescence
luciferase GFP app

IT Luminescence spectroscopy
(bioluminescence; sensitivity of detection of **bacteria** with fluorescent and luminescent phenotypes using different instruments)

IT Proteins, specific or class
RL: ANT (Analyte); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); **ANST (Analytical study)**; BIOL (Biological study); PROC (Process); USES (Uses)
(green fluorescent; sensitivity of detection of **bacteria** with fluorescent and luminescent phenotypes using different instruments)

IT Apparatus
(luminometer; sensitivity of detection of **bacteria** with fluorescent and luminescent phenotypes using different instruments)

IT **Bacteria** (Eubacteria)
CCD cameras
Escherichia coli
Fluorescence
Fluorometers
Fluorometry
Luminescence
Luminescence, bioluminescence
Luminescence spectroscopy
Pseudomonas putida
Salmonella enteritidis
(sensitivity of detection of **bacteria** with fluorescent and luminescent phenotypes using different instruments)

IT 9014-00-0, Bacterial luciferase 61970-00-1, Firefly Luciferase
RL: ANT (Analyte); ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); **ANST (Analytical study)**; BIOL (Biological study); PROC (Process); USES (Uses)
(sensitivity of detection of **bacteria** with fluorescent and luminescent phenotypes using different instruments)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 47 OF 179 CA COPYRIGHT 2003 ACS
AN 134:112423 CA
TI Multispectral bacterial identification
AU Tanner, Michael A.; Coleman, William J.; Everett, Christine L.; Robles, Steven J.; Dilworth, Michael R.; Yang, Mary M.; Youvan, Douglas C.
CS Kairos Scientific, Inc., Santa Clara, CA, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 3913(In-Vitro Diagnostic Instrumentation), 45-53
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB A multi spectral optical technique was developed to simultaneously classify individual bacterial cells within mixed populations. Multi spectral Bacterial Identification (mBID) combines innovations in microscopy with a software anal. program to measure and characterize the **fluorescence** signals from multiplexed 16S rRNA probes hybridized to populations of different **bacteria**. Software was developed to identify individual **bacteria** at the level of species within these mixed populations. TO test the feasibility of mBID, we examd. the **fluorescence emissions** from a mixt. of probes specific

for individual species of known **bacteria** from the American Type Culture Collection. Currently, up to seven species can be detected simultaneously by **fluorescence** microscopy. An eighth signal was reserved for a universal probe to control for **fluorescence** intensity. MBID can also be used to identify uncultured microorganisms. We plan to couple this new multi spectral technol. to existing identification technologies that utilize 16S rRNA sequence alignment. Using this integrated identification protocol, **bacteria** that may be assocd. with chronic conditions will be identified first by analyzing their 16S rDNA sequences and then by visualizing them with fluorescent probes hybridized to their 16S rRNA in situ.

CC 9-4 (Biochemical Methods)
Section cross-reference(s): 10, 14

ST multispectral bacterial identification **fluorescence** microscopy rRNA specific probe vaginosis

IT rRNA
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(16 S; multispectral bacterial identification)

IT Vagina
(disease; multispectral bacterial identification)

IT Arthrobacter oxidans
Bacillus subtilis
Bacteria (Eubacteria)
Corynebacterium flavescens
Escherichia coli
Flexibacter maritimus
Fluorescence microscopy
Lactobacillus delbrueckii lactis
Leptothrix discophora
Nucleic acid hybridization
(multispectral bacterial identification)

IT 312978-93-1D, conjugate with Bodipy 564/570
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(Arthrobacter globiformis 16S rRNA specific probe; multispectral bacterial identification)

IT 312978-92-0D, conjugate with Bodipy R6G
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(Bacillus subtilis 16S rRNA specific probe; multispectral bacterial identification)

IT 312978-95-3D, conjugate with Cy5
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(Corynebacterium flavescens 16S rRNA specific probe; multispectral bacterial identification)

IT 312978-91-9D, conjugate with Pacific Blue
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(Escherichia coli 16S rRNA specific probe; multispectral bacterial identification)

IT 312978-96-4D, conjugate with Cy5.5
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(Flexibacter maritimus 16S rRNA specific probe; multispectral bacterial identification)

IT 312978-90-8D, conjugate with Alexa 350
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(Lactobacillus lactis 16S rRNA specific probe; multispectral bacterial identification)

IT 312978-94-2D, conjugate with Bodipy 581/591
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES

(Uses)
(Leptothrix discophora 16S rRNA specific probe; multispectral bacterial identification)
IT 320797-24-8D, conjugate with Bodipy 493/503
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(bacterial 16S rRNA specific probe; multispectral bacterial identification)
IT 989-38-8D, conjugate with oligonucleotide probe 121207-31-6D, Bodipy 493/503, conjugate with oligonucleotide probe 144377-05-9D, conjugate with oligonucleotide probe 150152-69-5D, Bodipy 581/591, conjugate with oligonucleotide probe 150173-89-0D, Bodipy 564/570, conjugate with oligonucleotide probe 172777-84-3D, Cy5.5, conjugate with oligonucleotide probe 215868-31-8D, Pacific Blue, conjugate with oligonucleotide probe 244636-14-4D, Alexa 350, conjugate with oligonucleotide probe
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(multispectral bacterial identification)
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 50 OF 179 CA
AN 133:198214 CA
TI Use of **fluorescence** for characterizing source and speciation of aquatic humic substances
AU McKnight, Diane M.; Klapper, Lisa; Hood, Eran W.; Boyer, Elizabeth W.
CS Institute of Arctic and Alpine Research, University of Colorado, Boulder, CO, 80309, USA
SO Preprints of Extended Abstracts presented at the ACS National Meeting, American Chemical Society, Division of Environmental Chemistry (2000), 40(2), 659-660
CODEN: PEACF2; ISSN: 1524-6434
PB American Chemical Society, Division of Environmental Chemistry
DT Journal
LA English
AB Aq. humic substances are defined as a heterogeneous class of moderate mol. wt., yellow-colored bio-mols. which are present in all natural water. Spectroscopic characterization of humic substances provides only limited structural information due to the heterogeneity within fulvic acids, although spectroscopic characterization is useful in quantifying differences among fulvic acids. **Fluorescence**, which can be detected at fulvic acid concns. present in most natural water, potentially contains information about the source and speciation of humic substances. Humic substances derived from degrdn. of **microbial** matter have distinctive **fluorescence** characteristics vs. those derived from plant and soil matter. Based on differences in representative **excitation emission** matrixes, a simple index was developed which could be used in a field study involving a large no. of samples. This index is the ratio of **emission** at 450 nm to the **emission** at 500 nm for an **excitation** of 370 nm. This index has a value of .apprx.1.8 for **microbially**-derived fulvic acids and .apprx.1.25 for terrestrially-derived fulvic acids. Since other chem. characteristics of fulvic acid vary between these 2 sources of org. matter, these results may indicate a significant seasonal change in fulvic acid reactivity. Thus, **fluorescence** measurements may provide a tool to est. humic substance reactivity in different environments and provide ancillary data to understand C cycling in aq. ecosystems.
CC 61-3 (Water)
Section cross-reference(s): 80
ST aquatic humic substance speciation source characterization; **fluorescence** characterization aquatic humic substance
IT Fulvic acids
Humus

RL: ANT (Analyte); OCU (Occurrence, unclassified); **ANST (Analytical study)**; OCCU (Occurrence)
(aq.; using **fluorescence** to characterize sources and speciation of aquatic humic substances)

IT **Fluorescence**
(using **fluorescence** to characterize sources and speciation of aquatic humic substances)

IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); **ANST (Analytical study)**
(natural water; using **fluorescence** to characterize sources and speciation of aquatic humic substances)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 56 OF 179 CA

AN 132:185144 CA

TI A novel method for detection of viable Giardia cysts in water samples

AU Jarmey-Swan, C.; Gibbs, R. A.; Ho, G. E.; Bailey, I. W.; Howgrave-Graham, A. R.

CS Analytical Services, Umgeni Water, Pietermaritzburg, 3200, S. Afr.

SO Water Research (2000), 34(6), 1948-1951
CODEN: WATRAG; ISSN: 0043-1354

PB Elsevier Science Ltd.

DT Journal

LA English

AB Assessing Giardia viability is a major requirement for public health purveyors and the water industry. Several indicators of viability (e.g., stains, excystation, animal infectivity) have been used to enumerate cysts with varying degrees of success. A combined detection-viability method for use in water samples would be useful to detect and det. cyst viability in source and drinking water and disinfection efficacy at treatment plants. Distd. water samples were seeded with purified Giardia cysts and incubated with fluorescein diacetate (FDA), initially to stain viable cysts, followed by tetra-Methyl red labeled anti-Giardia monoclonal antibodies (TMR) for confirmation of identity. As a result of FDA staining, green **fluorescence** of intact viable cysts was obsd. microscopically using a 450-490 nm exciter filter; non-viable cysts were not stained. Giardia cysts reacted pos. with TMR and glowed red using a triple band microscope filter with **excitations** of 400/450/570 nm. At this wavelength, a combination of FDA and TMR stained viable cysts green internally with a red wall while non-viable cysts only stained red. This simple, reliable, quick method allowed differentiation of Giardia cysts in water samples while simultaneously detg. their viability.

CC 61-3 (Water)
Section cross-reference(s): 10, 80

ST Giardia cyst viability detn water; staining monoclonal antibody identification viability confirmation Giardia cyst; fluorescein diacetate staining Giardia cyst water; tetramethylrhodamine labeled monoclonal antibody Giardia cyst identification

IT Cyst, **microbial**
(Giardia; staining/monoclonal antibody method to simultaneously detect, identify, and confirm viability of Giardia cysts in water)

IT Giardia
(cysts; staining/monoclonal antibody method to simultaneously detect, identify, and confirm viability of Giardia cysts in water)

IT Antibodies
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); **ANST (Analytical study)**; USES (Uses)
(monoclonal, tetramethylrhodamine-labeled; staining/monoclonal antibody method to simultaneously detect, identify, and confirm viability of Giardia cysts in water)

IT 596-09-8, Fluorescein diacetate
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); **ANST (Analytical study)**; USES (Uses)

(cyst staining with; staining/monoclonal antibody method to simultaneously detect, identify, and confirm viability of Giardia cysts in water)

IT 70281-37-7, Tetramethylrhodamine
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); **ANST (Analytical study)**; USES (Uses)
(monoclonal antibodies labeled with; staining/monoclonal antibody method to simultaneously detect, identify, and confirm viability of Giardia cysts in water)

IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); **ANST (Analytical study)**
(source water and drinking water; staining/monoclonal antibody method to simultaneously detect, identify, and confirm viability of Giardia cysts in water)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 60 OF 179 CA COPYRIGHT 2003 ACS

AN 131:141627 CA

TI **Fluorescence** of dipicolinic acid as a possible component of the observed UV **emission** spectra of bacterial **spores**

AU Nudelman, Raphael; Feay, Nicole; Hirsch, Mathew; Efrima, Shlomo; Bronk, Burt

CS Mantech Environmental Technology Inc., USA

SO Proceedings of SPIE-The International Society for Optical Engineering (1999), 3533(Air Monitoring and Detection of Chemical and Biological Agents), 190-195
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB Dipicolinic acid (DPA) and the Ca2+ complex of DPA (CaDPA) are well-known and are major chem. components of bacterial **spores**. DPA's native **fluorescence** is very weak and is thought to be completely masked by the **fluorescence** of tryptophan when this compd. is present. Thus **fluorescence** related to DPA in **spores** is assumed by many authors to be completely absent. We show that the **fluorescence** of CaDPA is substantial for **excitation** between about 290 nm and 310 nm with **emission** peaking near 400 nm. This **emission** is at the long wavelength tail for **emission** from tryptophan. We examine whether the **emission** of CaDPA could contribute to the total **emission** spectrum when bacterial **spores** are present in an aerosol, for **excitation** wavelengths in the neighborhood of 310 nm. In this report we present measurements of **fluorescence** **excitation** and **emission** for CaDPA and compare them with that of DPA and tryptophan.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 4, 10

ST bacterium **spore** dipicolinate fluorometry

IT **Bacteria** (Eubacteria)
Environmental analysis
Fluorometry
Spore
(**fluorescence** of dipicolinic acid as a possible component of obsd. UV **emission** spectra of bacterial **spores**)

IT 73-22-3, L-Tryptophan, analysis 499-83-2, Dipicolinic acid 499-83-2D, Dipicolinic acid, calcium complex 7440-70-2D, Calcium, complex with dipicolinic acid, analysis
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study); OCCU (Occurrence)
(**fluorescence** of dipicolinic acid as a possible component of obsd. UV **emission** spectra of bacterial **spores**)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 64 OF 179 CA COPYRIGHT 2003 ACS
AN 130:278941 CA
TI Fluorescent biological particle detection system
IN Ho, Jim Yew-wah
PA Her Majesty the Queen In Right of Canada, as Represented by the Minister of, Can.
SO U.S., 18 pp., Cont.-in-part of U.S. 5,701,012.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5895922	A	19990420	US 1997-863023	19970523
	US 5701012	A	19971223	US 1996-616475	19960319
PRAI	US 1996-616475		19960319		

AB A process and app. are provided for detection of viable and potentially hazardous biol. particles which may be dispersed in a particulate-contg. airstream. The process comprises directing each of the contained particles along a linear path through air, in a sequential manner, and sampling them for detn. of their size, whether they are biol. and viable, and whether they are present in concns. greater than background levels. The particle size identifies the particles as respirable or not and the particles are characterized as biol. and viable by subjecting each particle in turn, to 340 nm, UV laser light and looking for the **emission** of **fluorescence** which is typically emitted from **bacteria** or bacterial **spore**. **Fluorescence** detected in the 400-540 nm range signals the presence of NADH, which is indicative of biol. activity or viability. A more compact, and power-saving app. results with the preferential use of a solid state, UV laser, which is actuated only when the particle is passing the laser and only if it is deemed to be a biol. viable candidate.
IC ICM G01N021-64
NCL 250491200
CC 9-5 (Biochemical Methods)
ST **fluorescence** biol particle detection system
IT Particles
(Biol.; fluorescent biol. particle detection system)
IT Air analysis
Apparatus
Bacteria (Eubacteria)
Biochemical molecules
Fluorometry
Particle size
Sampling
Spore
UV lasers
(fluorescent biol. particle detection system)
IT 58-68-4, NADH
RL: ANT (Analyte); BSU (Biological study, unclassified); **ANST (Analytical study)**; BIOL (Biological study)
(fluorescent biol. particle detection system)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 67 OF 179 CA COPYRIGHT 2003 ACS
AN 130:179461 CA
TI Two-photon **excitation** in **fluorescence** lifetime imaging
AU Gerritsen, Hans C.; Vroom, Jurrien; Sytsma, Joost
CS Debye Institute, Utrecht University, Utrecht, 3508 TA, Neth.
SO Fluorescence Microscopy and Fluorescent Probes, [Based on the Proceedings

of the Conference on Fluorescence Microscopy and Fluorescent Probes], 2nd, Prague, Apr. 9-12, 1997 (1998), Meeting Date 1997, 55-62. Editor(s): Slavik, Jan. Publisher: Plenum, New York, N. Y.
CODEN: 67BTAH

DT Conference

LA English

AB The authors employ time-gated lifetime imaging implemented in a two-photon **excitation** scanning microscope. The examples given demonstrate that **fluorescence** lifetime contrast is particularly suitable for in-depth imaging expts. Lifetime imaging enables the discrimination of multiple probes based on their differences in lifetime. The technol. is applied to the imaging of biofilms and human skin using Acridine-Orange.

CC 9-4 (Biochemical Methods)
Section cross-reference(s): 6, 13

ST microscopy two photon **excitation** **fluorescence** lifetime imaging

IT Staining, biological
(fluorescent; two-photon **excitation** in **fluorescence** lifetime imaging)

IT Tooth
(plaque; two-photon **excitation** in **fluorescence** lifetime imaging)

IT Imaging
(time-gated lifetime; two-photon **excitation** in **fluorescence** lifetime imaging)

IT Biofilm **bacteria**
Fluorescent indicators
Fluorescent substances
Skin
(two-photon **excitation** in **fluorescence** lifetime imaging)

IT Microscopy
(two-photon **excitation** scanning; two-photon **excitation** in **fluorescence** lifetime imaging)

IT Laser induced **fluorescence**
Photoexcitation
(two-photon; two-photon **excitation** in **fluorescence** lifetime imaging)

IT 65-61-2, Acridine Orange
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); PRP (Properties); **ANST (Analytical study)**; BIOL (Biological study)
(two-photon **excitation** in **fluorescence** lifetime imaging)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 79 OF 179 CA COPYRIGHT 2003 ACS

AN 128:45574 CA

TI Fluorescent biological particle detection system

IN Ho, Jim Yew-wah

PA Her Majesty the Queen In Right of Canada, as Represented by the Minister of, Can.

SO U.S., 17 pp.
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5701012	A	19971223	US 1996-616475	19960319
	US 5895922	A	19990420	US 1997-863023	19970523
PRAI	US 1996-616475		19960319		

AB A process and app. are provided for detection of viable and potentially

hazardous biol. particles which may be dispersed in a particulate-contg. airstream. The process comprises directing each of the contained particles along a linear path through air, in a sequential manner, and sampling them for detn. of their size, whether they are biol. and viable, and whether they are present in concns. greater than background levels. The particle size identifies the particles as respirable or not and the particles are characterized as biol. and viable by subjecting each particle in turn, to 340 nm, UV laser light and looking for the **emission** of **fluorescence** which is typically emitted from **bacteria** or bacterial **spore**. **Fluorescence** detected in the 400-540 nm range signals the presence of NAD hydrogen, which is indicative of biol. activity or viability.

IC ICM G01N021-64
NCL 250461200
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST **fluorescence** biol particle detection system
IT **Spore**
(Bacterial; fluorescent biol. particle detection system)
IT Particles
(Biol.; fluorescent biol. particle detection system)
IT Air analysis
Apparatus
Bacteria (Eubacteria)
Biochemical molecules
Fluorometers
Fluorometry
UV lasers
(fluorescent biol. particle detection system)
IT 58-68-4, NADh
RL: ANT (Analyte); **ANST (Analytical study)**
(fluorescent biol. particle detection system)

L17 ANSWER 88 OF 179 CA COPYRIGHT 2003 ACS
AN 127:80177 CA
TI Noninvasive monitoring of the physiological state of **microbial** cultures
AU Lestan, D.; Perdih, A.
CS Centre Soil Environmental Sci., Dep. Agronomy, Biotechnical Faculty, Univ. Ljubljana, Ljubljana, Slovenia
SO Acta Chimica Slovenica (1997), 44(1), 1-15
CODEN: ACSLE7; ISSN: 1318-0207
PB Slovenian Chemical Society
DT Journal; General Review
LA English
AB A review with 41 refs. In attempts to improve the performance of bioprocess modeling and control it is becoming clear that alternative methods for accessing information from biol. systems, better suited to the nature of living systems, have to be developed. Three considerably different approaches have been proposed to access this information and are reviewed here. The optical approach relies on enzymes or metabolites which change their optical absorption or **fluorescence** **emission** as a function of specific or induced cellular alterations. 31P NMR can be used for the detn. of energy-rich P compds. Online monitoring of the physiol. state of the living matter in bioreactors uses knowledge-based recognition systems to assess variables that indicate the physiol. state.
CC 16-0 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 9, 10
ST review microorganism culture noninvasive monitoring; optical spectroscopy **microbial** culture monitoring review; phosphorus 31 NMR culture monitoring review; recognition system **microbial** culture monitoring review
IT Computer application

(expert systems; noninvasive monitoring of physiol. state of **microbial** cultures)
IT Bioreactors
Biotechnology
Fluorescence
Microorganism
Optical absorption
Spectroscopy
UV and visible spectroscopy
(noninvasive monitoring of physiol. state of **microbial** cultures)
IT Energy-rich phosphates
RL: ANT (Analyte); **ANST (Analytical study)**
(noninvasive monitoring of physiol. state of **microbial** cultures)
IT NMR spectroscopy
(phosphorus-31; noninvasive monitoring of physiol. state of **microbial** cultures)

L17 ANSWER 98 OF 179 CA COPYRIGHT 2003 ACS
AN 124:64699 CA
TI Aerosol-**fluorescence** spectrum analyzer: real-time measurement of **emission** spectra of airborne biological particles
AU Hill, Steven C.; Pinnick, Ronald G.; Nachman, Paul; Chen, Gang; Chang, Richard K.; Mayo, Michael W.; Fernandez, Gilbert L.
CS Army Research Laboratory, White Sands Missile Range, NM, 88002-5501, USA
SO Applied Optics (1995), 34(30), 7149-55
CODEN: APOPAI; ISSN: 0003-6935
PB Optical Society of America
DT Journal
LA English
AB We have assembled an aerosol-**fluorescence** spectrum analyzer (AFS), which can measure the **fluorescence** spectra and elastic scattering of airborne particles as they flow through a laser beam. The aerosols traverse a scattering cell where they are illuminated with intense (50 kW/cm2) light inside the cavity of an argon-ion laser operating at 488 nm. This AFS can obtain **fluorescence** spectra of individual dye-doped polystyrene microspheres as small as 0.5 .mu.m in diam. The spectra obtained from microspheres doped with pink and green-yellow dyes are clearly different. We have also detected the **fluorescence** spectra of airborne particles (although not single particles) made from various biol. materials, e.g., Bacillus subtilis **spores**, Bacillus anthracis **spores**, riboflavin, and tree leaves. The AFS may be useful in detecting and characterizing airborne **bacteria** and other airborne particles of biol. origin.
CC 59-1 (Air Pollution and Industrial Hygiene)
ST airborne biol aerosol particle detn; bioaerosol detn air laser **fluorescence**
IT Air analysis
Particles
(real-time measurement of **emission** spectra of airborne biol. particles)
IT Bacillus anthracis
Bacillus subtilis
(**spores**; real-time measurement of **emission** spectra of airborne biol. particles)
IT Aerosols
(airborne, biol., real-time measurement of **emission** spectra of airborne biol. particles)
IT Air pollution
(particulate, real-time measurement of **emission** spectra of airborne biol. particles)
IT 83-88-5, Riboflavin, analysis
RL: ANT (Analyte); **ANST (Analytical study)**

(real-time measurement of **emission** spectra of airborne biol. particles)

L17 ANSWER 100 OF 179 CA COPYRIGHT 2003 ACS
AN 124:22668 CA
TI Green fluorescent protein as a new expression marker in mycobacteria
AU Kremer, Laurent; Baulard, Alain; Estaquier, Jerome; Poulain-Godefroy, Odile; Locht, Camille
CS Laboratoire de Microbiologie Genetique et Moleculaire, INSERM, Lille Cedex, F-59019, Fr.
SO Molecular Microbiology (1995), 17(5), 913-22
CODEN: MOMIEE; ISSN: 0950-382X
PB Blackwell
DT Journal
LA English
AB This study describes the use and the advantages of the green fluorescent protein (GFP) as a reporter mol. for mycobacteria. The gfp gene from Aequorea victoria was placed under the control of the HSP60 promoter in the shuttle vector pGFM-11. The gfp expression in the recombinant Mycobacterium smegmatis and BCG was readily detected on agar plates by the development of an intense green **fluorescence** upon irradn. with long-wave UV light. In mycobacteria contg. a pGFM-11 deriv. that lacks the hsp60 promoter, no **fluorescence** was obsd. However, this plasmid was successfully used as a promoter-probe vector to identify RCG promoters. The **fluorescence emission** of GFP in mycobacteria harboring pGFM-11 and grown in liq. media could be quantified by spectrofluorimetry. This allowed for easy assessment of drug susceptibility. As GFP does not require the addn. of substrates or cofactors, the green fluorescent bacilli could be directly obsd. within infected macrophages using **fluorescence** and laser confocal microscopy, or in tissue sections of infected mice. Finally, infected cells or free-living recombinant mycobacteria could also be analyzed by flow cytometry. The GFP thus appears to be a convenient reporter for mycobacteria, allowing tracing of recombinant mycobacteria, isolation of promoters with interesting properties, in vivo drug testing, and the development of new diagnostic tools.
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9, 10
ST green fluorescent protein expression marker mycobacteria
IT Gene, **microbial**
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(gfp, reporter; green fluorescent protein as an expression marker in mycobacteria)
IT Aequorea victoria
Mycobacterium
Mycobacterium BCG
Mycobacterium smegmatis
(green fluorescent protein as an expression marker in mycobacteria)
IT Plasmid and Episome
(pGFM-11; green fluorescent protein as an expression marker in mycobacteria)
IT Spectrochemical analysis
(fluorometric, green fluorescent protein as an expression marker in mycobacteria)
IT Proteins, specific or class
RL: ARG (Analytical reagent use); **ANST (Analytical study)**; USES (Uses)
(green fluorescent, green fluorescent protein as an expression marker in mycobacteria)
IT Genetic element
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(promoter, hsp60; green fluorescent protein as an expression marker in

mycobacteria)

L17 ANSWER 105 OF 179 CA COPYRIGHT 2003 ACS
AN 123:51436 CA
TI Spectroscopic properties of tryptophan and **bacteria**
AU Tang, G. C.; Yang, Y. L.; Huang, Z. Z.; Hua, W.; Zhou, F.; Cosloy, S.; Alfano, R. R.
CS City College, City University of New York, New York, NY, 10031, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (1995), 2387, 169-72
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
AB **Fluorescence** spectra of tryptophan and **bacteria** were measured at different concns. using a Mediscience CD-Scan unit. The **emission** spectra of tryptophan were obtained using an **excitation** wavelength at 280 nm. The **excitation** spectra were obtained at the **emission** of 340 nm. The min. detectable concn. of tryptophan was 10-8 M. The **emission** spectra for **bacteria** were probed at 340 nm. The min. detectable no. of **bacteria** in a beam of the **excitation** light was detd. to be about 30. Assuming that the **emission** band at 340 nm of **bacteria** comes from tryptophan, the no. of tryptophan per bacterium was estd. to be 108. This approach to det. the no. is almost consistent with that obtained using a wt. method.
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST **fluorescence bacteria** tryptophan detection
IT **Bacteria**
Escherichia coli
Fluorescence
(spectroscopic properties of tryptophan and **bacteria**)
IT 54-12-6, DL-Tryptophan
RL: ANT (Analyte); PRP (Properties); **ANST (Analytical study)**
(spectroscopic properties of tryptophan and **bacteria**)

L17 ANSWER 110 OF 179 CA COPYRIGHT 2003 ACS
AN 121:200084 CA
TI In-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in the human skin and in the oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma
AU Konig, Karsten; Schneckenburger, Herbert; Hemmer, Joerg; Tromberg, Bruce; Steiner, Rudolf
CS Beckman Laser Institute, Irvine, CA, 92715, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (1994), 2135(Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases), 129-38
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
AB Certain **bacteria** are able to synthesize metal-free fluorescent porphyrins and can therefore be detected by sensitive autofluorescence measurements in the red spectral region. The porphyrin-producing bacterium Propionibacterium acnes, which is involved in the pathogenesis of acne vulgaris, was localized in human skin. Spectrally-resolved **fluorescence** images of **bacteria** distribution in the face were obtained by a slow-scan CCD camera combined with a tunable liq. crystal filter. The structured autofluorescence of dental caries and dental plaque in the red is caused by oral **bacteria**, like Bacteroides or Actinomyces odontolyticus. "Caries images" were created by time-gated imaging in the ns-region after ultrashort laser **excitation**. Time-gated measurements allow the suppression of backscattered light and non-porphyrin autofluorescence. Biopsies of oral squamous cell carcinoma exhibited red autofluorescence in necrotic regions

and high concns. of the porphyrin-producing bacterium Pseudomonas
aeruginosa. These studies suggest that the temporal and spectral
characteristics of bacterial autofluorescence can be used in the diagnosis
and treatment of a variety of diseases.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 8, 10, 14

ST **fluorescence** imaging porphyrin producing bacterium; acne vulgaris skin **fluorescence** imaging; dental caries bacterium **fluorescence** imaging; oral squamous cell carcinoma **fluorescence** imaging

IT Mouth
Skin
(in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT Porphyrins
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); MFM (Metabolic formation); **ANST (Analytical study)** ; BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence)
(in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT **Bacteria**
(porphyrin-producing; in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT Tooth
(disease, caries, in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT Imaging
(fluorescent, in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT Spectrochemical analysis
(fluorometric, in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT Mouth
(neoplasm, squamous cell carcinoma, in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

IT Acne
(vulgaris, in-vivo **fluorescence** detection and imaging of porphyrin-producing **bacteria** in human skin and in oral cavity for diagnosis of acne vulgaris, caries, and squamous cell carcinoma)

L17 ANSWER 114 OF 179 CA

AN 120:265052 CA

TI Online, non-destructive biomass determination of bacterial biofilms by fluorometry

AU Angell, Peter; Arrage, Andrew A.; Mittelman, Marc W.; White, David C.

CS Cent. Environ. Biotechno., Knoxville, TN, 37932, USA

SO Journal of Microbiological Methods (1993), 18(4), 317-27
CODEN: JMIMDQ; ISSN: 0167-7012

DT Journal

LA English

AB The lack of online methodol. for the detn. of **microbial** biomass and activity of attached **bacteria** has severely limited the study of biofilm physiol. This study showed that the fluorescent

emission of arom. amino acids in **microbial** biofilms can be used to det. the biomass formed on 316 stainless steel coupons. Cells resuspended from the substratum were enumerated by viable and acridine orange counts showing correlation coeffs. of 0.77 and 0.98, resp., when compared to the tryptophan **fluorescence**. Substrata treated with a fluorescent epoxy coating (F-150) showed no **fluorescence** that could be attributed to the microorganisms. Bioluminescent **emission** of an actively growing bioluminescent bacterium, Vibrio harveyi, was correlated with acridine orange counts ($r2= 0.95$) and **fluorescence** ($r2= 0.93$). The results of these studies suggest that **fluorescence** measurements can be used to monitor **microbial** biomass assocd. with various substrata. Coupled with bioluminescence measurements, this method provides information on both biomass constituents and metabolic activity, and therefore possibly an indicator of sub-lethal toxicity.

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 16, 60

ST **bacteria** biofilm biomass detn fluorometry

IT Films
(bacterial, biomass of, detn. of, by fluorometry)

IT **Bacteria**
(biofilms, biomass detn. in, by fluorometry)

IT Biomass
(detn. of, of **bacteria** biofilms by fluorometry)

IT 53-57-6, NADPH
RL: **ANST (Analytical study)**
(detn. of in **bacteria** biofilm biomass detn.)

IT 58-68-4, NADH 73-22-3, Tryptophan, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in **bacteria** biofilm biomass detn.)

L17 ANSWER 117 OF 179 CA

AN 119:45156 CA

TI Determination of fluorescent substances in microorganism, and its use for determination of microorganism viability

IN Hirotsuji, Junji; Yoshimura, Yumiko; Sugimoto, Masuo; Nakatsugawa, Naoki; Oota, Naomi

PA Mitsubishi Electric Corp, Japan

SO Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05111394	A2	19930507	JP 1991-277705	19911024
	JP 2947305	B2	19990913		
PRAI	JP 1991-277705		19911024		

AB The fluorescent substances such as coenzyme F420 (I) in microorganism is detd. by direct irradn. of the microorganism with an **excitation** wavelength. Based on the **fluorescence** data, the content and concn. of the fluorescent substances can be calcd. and the viability of the microorganism detd. The method is easy and fast, and does not need to disrupt the cells. Fluorescent detn. of I in methane **bacteria** and the viability of the **bacteria** was shown. The result was comparable to that with the prior art.

IC ICM C12Q001-02

CC 10-6 (Microbial, Algal, and Fungal Biochemistry)

ST **fluorescence** detn microorganism viability; substance **fluorescence** detn microorganism

IT Fluorescent substances
(fluorescent detn. of, in microorganism for detn. of viability)

IT Microorganism
(fluorescent substances in, detn. of, for detn. of microorganism

viability)

IT **Bacteria**
(methanogenic, F420 in, detn. of, for detn. of **bacteria** viability)

IT 64885-97-8, Coenzyme F420
RL: ANT (Analyte); **ANST (Analytical study)**
(**fluorescence** detn. of, in methane **bacteria**)

L17 ANSWER 128 OF 179 CA COPYRIGHT 2003 ACS
AN 115:178859 CA
TI Method and reagents for detecting microorganisms
IN Monget, Daniel
PA Biomerieux S. A., Fr.
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 424293	A1	19910424	EP 1990-420453	19901018
	EP 424293	B1	19950412		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	FR 2653447	A1	19910426	FR 1989-14087	19891020
	FR 2653447	B1	19911227		
	AT 121138	E	19950415	AT 1990-420453	19901018
	ES 2071067	T3	19950616	ES 1990-420453	19901018
	CA 2028059	C	20010213	CA 1990-2028059	19901019
	US 5336600	A	19940809	US 1992-961625	19921016
PRAI	FR 1989-14087	A	19891020		
	US 1990-600919	B3	19901022		

OS MARPAT 115:178859
AB Microorganisms are detected using an aq. reaction media contg. a C source, a N source, and a marker whose luminous **emission** is modified as a consequence of development of the microorganism in the reaction media. The marker is, e.g. I (R1, R4, R5 = H, F, Cl, Br, alkyl, alkoxy, CO2H, amide, cyano; R2, R3 = H, F, Cl, Br, alkyl, alkoxy, carboxylate, CO2H, amide, cyano; or R3R2 form an unsatd. ring; X - OH, amine) or its anionic form. Six different antibiotics at 2 different concns. were added to tubes contg. Mueller Hinton media, glucose, resorufin, and water (pH 7.3). Escherichia coli, Pseudomonas aeruginosa, and Staphylococcus aureus (10 cells/mL) were added and fluoroescence was measured after 18 h incubation at 35.degree.. If the microorganism was sensitive to the antibiotic, **fluorescence** was maximal; resistant microorganisms gave total extinction of the fluoroescence.
IC ICM C12Q001-04
ICS C12Q001-18; C07D265-38
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST microorganism detection resorufin deriv **fluorescence**; antibiotic microorganism sensitivity **fluorescence** resorufin
IT Candida albicans
Citrobacter freundii
Escherichia coli
Pseudomonas aeruginosa
Staphylococcus aureus
Streptococcus faecalis
(detection of, by **fluorescence** assay, resorufin as marker in)
IT Microorganism
(detection of, by luminescence assay, resorufin or deriv. as marker in)
IT Blood analysis
Body fluid
Cerebrospinal fluid
Cosmetics

Food analysis
Pharmaceutical analysis
Urine analysis
(microorganism detection in, by luminescence assay, resorufin or deriv. as marker for)

IT Antibiotics
Fungicides and Fungistats
(microorganism sensitivity to, resorufin or deriv. in luminescence assay of)

IT Aeromonas hydrophila
Candida tropicalis
Klebsiella pneumoniae
Proteus vulgaris
Torulopsis glabrata
Vibrio alginolyticus
(response of, to different sugars, in **fluorescence** assay with resorufin as marker, microorganism identification in relation to)

IT Spectrochemical analysis
(fluorometric, microorganism detection by, resorufin in)

IT **Bacteria**
(intestinal, detection of, by **fluorescence** assay, resorufin as marker in)

IT Spectrochemical analysis
(luminescence, microorganism detection by, resorufin or deriv. as marker in)

IT 635-78-9, Resorufin 635-78-9D, Resorufin, anions
RL: **ANST (Analytical study)**
(as luminescent marker for microorganism detection)

IT 101490-85-1
RL: **ANST (Analytical study)**
(as substrate for .beta.-glucuronidase of Escherichia Coli detection)

IT 50-99-7, Glucose, analysis 57-50-1, Saccharose, analysis 63-42-3, Lactose 69-79-4 99-20-7, Trehalose 528-50-7, Cellobiose 585-99-9, Melibiose
RL: **ANST (Analytical study)**
(microorganism response to, in microorganism identification by resorufin **fluorescence** assay)

IT 60-54-8, Tetracycline 61-33-6, properties 114-07-8, Erythromycin 35607-66-0 61477-96-1
RL: **ANST (Analytical study)**
(microorganism sensitivity to, resorufin in **fluorescence** assay of)

IT 9001-45-0
RL: **ANST (Analytical study)**
(resorufin-glucuronide as substrate for, for Escherichia coli detection)

L17 ANSWER 141 OF 179 CA
AN 110:150195 CA
TI **Fluorescence** photometric determination of the coenzyme F420 to monitor anaerobic effluent purification
AU Kaiser, G.; Frenzel, S.; Mauch, W.
CS Fachgeb. Zuckertechnol., Tech. Univ. Berlin, Berlin, D-1000/65, Fed. Rep. Ger.
SO Zuckerindustrie (Berlin, Germany) (1988), 113(10), 868-72
CODEN: ZUCKDI; ISSN: 0344-8657
DT Journal
LA German
AB A method is proposed for the detn. of coenzyme F420, which is characteristic for CH_4-forming **bacteria**, making it possible to monitor anaerobic effluent purifn. by relatively simple means. The only equipment required is a slightly modified photometer or nephelometer, a table centrifuge, and a membrane filter. By detg. the **fluorescence** intensity at 470 nm over a wide spectrum of

excitation wavelengths (340-450 nm), the optimum reaction conditions (e.g. pH, solvent, redox state) for fluorimetric detection have been identified and the specificity of the method for coenzyme F420 established. Since for normal plant control it is not necessary to measure the molar concn. of coenzyme F420, the anal. is reduced to the detn. of the relative **fluorescence**. The latter reflects the state of effluent fermn. Disturbances in the course of fermn. are quickly manifested by a decrease in **fluorescence**, allowing prompt correction of the effluent purifn. process.

CC 7-1 (Enzymes)
Section cross-reference(s): 16
ST coenzyme F420 detn **fluorescence** methanogen fermn
IT Fermentation
(with methanogens, monitoring of, **fluorescence** method for)
IT **Bacteria**
(methanogenic, fermn. with, monitoring of, **fluorescence** method for)
IT 64885-97-8, Coenzyme F420
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, by **fluorescence** method, for monitoring fermn. by methanogenic **bacteria**)

L17 ANSWER 149 OF 179 CA COPYRIGHT 2003 ACS
AN 105:130360 CA
TI Determination of a concentration of **bacteria** in a suspension
IN Kosarev, N. V.; Puckkov, E. O.
PA All-Union Scientific-Research Institute of Applied Microbiology, USSR
SO U.S.S.R.
From: Otkrytiya, Izobret. 1986, (18), 127.
CODEN: URXXAF
DT Patent
LA Russian
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	SU 1231077	A1	19860515	SU 1984-3719309	19840328
PRAI	SU 1984-3719309		19840328		

AB The concn. of **bacteria** in a suspension is detd. by prepg. a bacterial suspension and recording the optical parameters. The accuracy and sensitivity of anal. are increased by adding up to 0.03-0.05% Triton X100, .ltoreq.0.3-3.0 mmole tris-ethylenediaminetetraacetate (sic) at pH 7.2-7.5, and .ltoreq.4.0-7.0 .mu.mole ethidium bromide to the suspension and increase of the **fluorescence** intensity is measured in sample with **bacteria** as compared to the samples without **bacteria** at 540-620 nm with **excitation** at 260-320 or 420-530 nm, and the concn. of **bacteria** is calcd. from the increase of the **fluorescence** intensity.
IC ICM C12N001-00
ICS C12Q001-00
ICI C12Q001-00, C12R001-01
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST **bacteria** detn suspension fluorometry
IT **Bacteria**
Microorganism
(detn. of, in suspensions, by fluorometry)
IT Spectrochemical analysis
(fluorometric, for **bacteria** in suspensions)
IT 1239-45-8 9002-93-1
RL: **ANST (Analytical study)**
(in **bacteria** detn. in suspension by fluorometry)

L17 ANSWER 155 OF 179 CA COPYRIGHT 2003 ACS
AN 103:3115 CA

TI Identification of bacterial pathogens by laser excited
fluorescence
AU Coburn, J. T.; Lytle, F. E.; Huber, D. M.
CS Dep. Chem., Purdue Univ., West Lafayette, IN, 47907, USA
SO Analytical Chemistry (1985), 57(8), 1669-73
CODEN: ANCHAM; ISSN: 0003-2700
DT Journal
LA English
AB The title rapid method relies on the extent of aminopeptidase hydrolysis of a series of nonfluorescent L-amino acid .beta.-naphthylamides to produce the highly fluorescent .beta.-naphthylamine by the pathogen of interest. The luminescence background was composed of Raman and Rayleigh scatter, fluorescent impurities in the buffer, .beta.-naphthylamine **fluorescence** due to substrate decompn., and **emission** of the biol. matrix. The blank levels were systematically examd. and reduced to levels which allow the measurement of the fluorophore in the 0.1-nM range. Thus, unambiguous identification of pathogens at the 50,000 cell/mL level was achieved. This corresponds to 2-3 orders of magnitude fewer cells than needed by other techniques. Identification of pathogens at this level will drastically reduce the cell growth period from 48 to 6 h and afford a more rapid turnaround time for bacterial identification.
CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10
ST **bacteria** pathogen identification laser fluorometry;
aminopeptidase profiling **bacteria** identification
IT Pseudomonas syringae phaseolicola
Xanthomonas phaseoli
(identification of, by aminopeptidase profiling with laser fluorometry)
IT Spectrochemical analysis
(fluorometric, laser-induced, for aminopeptidase substrates, in **bacteria** pathogen profiling)
IT Fluorometers
(laser, time-resoln., for **bacteria** pathogen identification)
IT **Bacteria**
(pathogenic, identification of, by aminopeptidase profiling with laser fluorometry)
IT 716-94-9 720-82-1 729-24-8 732-84-3 732-85-4 740-57-8
1259-69-4 3326-63-4 3326-64-5 4357-95-3 4420-88-6 7182-70-9
7424-15-9 7424-16-0 14525-44-1 16037-15-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, by aminopeptidase in **bacteria** pathogen identification by laser fluorometry)
IT 9031-94-1
RL: **ANST (Analytical study)**
(in **bacteria** pathogen identification by laser fluorometry)

L17 ANSWER 156 OF 179 CA COPYRIGHT 2003 ACS
AN 102:75146 CA
TI A comprehensive method for the measurement of **fluorescence** lifetime in picoseconds with a phase fluorometer and its application for the determination of **excitation** enery transfer rate in light-harvesting pigment antenna of green **bacteria**
AU Fetisova, Z. G.; Kharchenko, S. G.; Blagoveshchenskii, Yu. N.; Borisov, A. Yu.
CS USSR
SO Vestnik Moskovskogo Universiteta, Seriya 16: Biologiya (1984), (4), 56-9
CODEN: VMUBDF; ISSN: 0137-0952
DT Journal
LA Russian
AB A universal phase fluorometric method for measuring **fluorescence** lifetime in picoseconds is based on mixing 2 **fluorescence** beams. The photocathode of the phase fluorometer registers the superimposed 2 light components: the desired short-lived and long-lived components of the same object in a suitable solvent. This method was specially modified for

measuring the **fluorescence** of photosynthetic pigments (in vivo). The 2-component systems were obtained from 2 solns. of Na fluorescein in 0.001M NaOH, placed in the adjacent cuvettes, 1 of which contained KI as a quencher. Math. equations are given to do the necessary calcns. The method was used to measure the rate of **excitation** energy transfer in light-harvesting pigment antenna of Chlorobium limicola with a photoreaction center P840. About 90% bacteriochlorophyll c with light-harvesting property participates in transfer of **excitation** energy transfer to bacteriochlorophyll a and accomplishes it in 20-60 ps with an efficiency of >95% under unsatisfactory light conditions (for photosynthesis).

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 10, 11

ST **fluorescence** lifetime picosecond detn; energy transfer Chlorobium **fluorescence** picosecond

IT Energy transfer
(**fluorescence**, in photosynthetic systems of green **bacteria**, method for measurement of)

IT Pigments, **microbial**
(light-harvesting, **excitation** energy transfer rate detn. in)

IT Chlorobium limicola
(photosynthetic systems of, **excitation** energy transfer in, method for detn. of)

IT Fluorometry
(picosecond, of **excitation** energy transfer in light-harvesting pigment antenna of green **bacteria**)

IT Photosynthetic systems
(reaction center, P840, of Chlorobium limicola, **excitation** energy transfer in, method for detn. of)

IT 17499-98-8 53986-51-9
RL: **ANST (Analytical study)**
(of Chlorobium limicola, method for **excitation** energy transfer rate detn. in relation to)

L17 ANSWER 169 OF 179 CA

AN 93:40914 CA

TI Two-parameter analysis of **microbial** cell constituents

AU Hutter, K. J.; Stoehr, M.

CS Inst. Exp. Pathol., Dtsch. Krebsforschungszent., Heidelberg, 6900, Fed. Rep. Ger.

SO Microbios Letters (1979), 10(39-40), 121-8
CODEN: MILEDM; ISSN: 0307-5494

DT Journal

LA English

AB Flow cytometry is a new assay to investigate different cellular constituents, e.g., the DNA and protein content of a wide variety of biol. specimens. Investigations have involved quant. fluorescent staining of monodisperse cell populations in liq. suspension at a flow rate of 1000 cells/s. The development of a new dual laser beam **excitation** device for flow cytometry anal. has enabled simultaneous measurement of the DNA and protein content of baker's yeast cells. The combination of light sources consisted of an Ar ion laser with an **excitation** wavelength of 488 nm, and a 2nd Ar ion laser at 360 nm wavelength. The **microbial** DNA content was stained by 4',6-diamidino-2-phenylindol while the protein content was fluorochromized by Sulforhodamine 101. This staining technique avoided any RNA digestion with pepsin in order to eliminate non-specific cytoplasm **fluorescence** and revealed a no. of cells in various phases of their life cycle. A correlation between the replicative and metabolic activity was visualized.

CC 9-6 (Biochemical Methods)

ST protein yeast flow cytometry; DNA yeast flow cytometry

IT Saccharomyces cerevisiae
(DNA and protein detn. in, by flow cytometry)

IT Deoxyribonucleic acids

Proteins
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in yeast by flow cytometry)

IT 28718-90-3
RL: **ANST (Analytical study)**
(DNA in yeast staining with, for detn. by flow cytometry)

IT 60311-02-6
RL: **ANST (Analytical study)**
(protein staining in yeast with, for detn. by flow cytometry)

L17 ANSWER 175 OF 179 CA COPYRIGHT 2003 ACS
AN 78:56378 CA
TI Method for simultaneous determination of histidine and histamine in biological liquids. Application to wines
AU Plumas, B.; Sautier, C.
CS Cent. Rech. Diet., Hop. Bichat, Fr.
SO Annales des Falsifications et de l'Expertise Chimique (1972), 65(703), 322-36
CODEN: AFECAT; ISSN: 0003-4274
DT Journal
LA French
AB Histidine (I) is sepd. from histamine (II) on an Amberlite CG-50 resin; II is eluted from the resin with 3N HCl. To det. I, the pH of the effluent is adjusted to 12.15 with NaOH, o-phthalic dialdehyde (C6H4(CHO)2) is added, and after exactly 4 min the condensation reaction is stopped by the addn. of 3N HCl. A **fluorescence** that is stable for 30 min is obtained; activation 360 m.mu., and **emission** 450 m.mu.. To det. II, the pH is adjusted to 12.45. The precision and sensitivity of the method for II is 0.05 mg/l. and 0.025 .mu.g/ml, resp., and for I is 0.7 mg/l. and 0.75 .mu.g/ml. Anal. of about 50 wines of different origins gave higher values for I in white wine, 19.43-31.28 mg/l., than for red wines, 16.99-17.22 mg/l. White wines had less II, 2.69-4.90 mg/l., than red wines, 6.36-6.49 mg/l. In the course of malolactic reversion, the amt. of I decreased and II increased. This may be due to a simultaneous decarboxylation of I and malic acid. To avoid formation of II, **bacteria** should be selected that can decarboxylate malic acid without acting on I. 9 refs.
CC 16-1 (Fermentations)
ST wine histidine histamine detn; malate wine histamine; fluorometry histamine
IT Wine analysis
(histamine and histidine simultaneous detn. in)
IT 71-00-1, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in histamine presence)
IT 51-45-6, analysis
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in histidine presence)

L17 ANSWER 179 OF 179 CA COPYRIGHT 2003 ACS
AN 72:107693 CA
TI Direct fluorometric determination of bacterial nucleic acids
AU Launay, Bernard; Truhaut, Rene
CS Centre Rech. Toxicol., Fac. Pharm., Paris, Fr.
SO Comptes Rendus des Seances de l'Academie des Sciences, Serie D: Sciences Naturelles (1969), 269(25), 2614-17
CODEN: CHDDAT; ISSN: 0567-655X
DT Journal
LA French
AB Cultures of Proteus vulgaris and Escherichia coli were collected, washed with NaCl 0.16 + citrate 0.01M, and .apprx.20 g wet wt. of each bacterium was suspended in 20 ml of the washing soln. The **bacteria** were lysed with 0.25-0.5 ml of 20% Na dodecylsulfate in EtOH, and the lysate was diluted 200-fold with Tris-HCl buffer at pH 7.5. **Fluorescence**

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was detd. in the presence of 8 .mu.g/ml of ethidium bromohydrate with **excitation** at 3400 .ANG. and **emission** at 5950 .ANG..
The increase in the **fluorescence** of ethidium bromohydrate was proportional to the vol. of the lysate. The method allowed the detn. of DNA at concns. .gtoreq.10-3 .mu.g/ml, corresponding to a level of .apprx.5 .times. 104 **bacteria**/ml.

CC 6 (Biochemical Methods)
ST fluorometry nucleic acids; nucleic acids fluorometry
IT Escherichia coli
(deoxyribonucleic acid detn. in)
IT Nucleic acids, deoxyribo-
RL: ANT (Analyte); **ANST (Analytical study)**
(detn. of, in **bacteria**)
IT Proteus
(vulgaris, deoxyribonucleic acid detn. in)

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